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State of Utah

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Date July 11, 2001

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Description	
	Letter to Kevin Jones from Peter Isaksworth & Betsy Skinner concerning site 42Be 2126 (LC-10).
Number of Pages (including cover)	4

June 25, 2001

Dr. Kevin Jones
Utah Division of State History
300 Rio Grande
Salt Lake City, UT 84101

Dear Dr. Jones:

At the recent SAA meetings in New Orleans, Ms. Mari Parker contacted Betsy Skinner (as a recognized lithic specialist with extensive obsidian quarry and technology expertise) with some concerns she has with the North Pearl Queen Mine expansion on SITLA land on Bailey Ridge in the Mineral Mountains, Beaver County, Utah. Ms. Parker is an archaeologist, current working in California and Nevada, who grew up in Milford and whose family originally owned the mine in question.

On the second weekend of May, 2001, we met with Mari and Tim Parker and visited the obsidian source areas in the Mineral Mountains. We spent a considerable amount of time examining the Bailey Ridge source area, particularly site 42BE2126. Ms. Parker provided us with two documents concerning the site: *Cultural Resource Inventory of the Proposed North Pearl Queen Mine Site, Beaver County, Utah* by Jacki A. Montgomery, and *Data Recovery Plan for a Prehistoric Obsidian Lithic Procurement Site (42Be2126) in the Mineral Mountains, Beaver County, Utah* by Keith R. Montgomery.

Ms. Parker was concerned about the adequacy of the site recording and the scope and level of effort as proposed in the data recovery plan. She had concerns with the lack of justification for doing entirely in-field analysis, comparability of techniques for future research, and qualifications of the personnel conducting the lithic analysis.

We have reviewed the documents and conducted a field reconnaissance of the site and surrounding source areas. Based on our extensive work on obsidian quarries in California and elsewhere, our expertise in lithic technology, and our experience with obsidian hydration, we would suggest that the initial recording is inadequate and the proposed data recovery is poorly conceived. Our main concerns are the following:

1. The site description does not adequately reflect the density and variability among the various Lithic Concentrations. Maximum density is at least an order of magnitude larger than is stated in the report. Internal variability, especially in Lithic Concentration 10 (LC-10) is much greater than reported. Although documenting this in detail is generally done in data recovery, sufficient recording needs to be done earlier to design an appropriate data recovery strategy. Just in LC-10, we observed several types of biface reduction, various types of core reduction, and cobble testing. From our observation, this part of the Mineral Mountain source contains some of the largest surface raw material in the source areas. Of particular note is the large biface reduction, similar to a cache of bifaces (Loa bifaces) reported by Dr. Janetski. Because of the steepness of the slope,

availability of the raw material would be continuous through time. Cost of extraction would be minimal because it would not require excavating quarry pits. Through time, this portion of the quarry would renew itself, which may provide evidence of a long history of use. Moreover, unlike as stated in the data recovery plan, we observed areas that have the potential for subsurface deposits. These are not the classic habitation subsurface deposits that most archaeologists are used to. Instead, they are more like stratified geological deposits that could demonstrate the history of the use at the quarry.

2. We noted in our review of the documents, particularly the data recovery plan, that the lithic literature cited is out of date, particularly with regard to quarry and obsidian studies. A great deal of work has been conducted in the last 30 years on obsidian quarries, including Romos' work at the Queens obsidian source in Nevada, Elston's work at Coso in California, Gilreath and Hildebrandt's work at Coso, Skinner and Ainsworth's work at Casa Diablo in California, Singer and Ericson's work at Bodie Hills in California, and Bettinger's work at Fish Springs in California, just to name a few. Reviewing the more recent literature in quarry studies as well as fracture mechanics and technological analysis may solve some of the serious problems with sampling design, technological analysis, and sample size that we observed in the data recovery plan.

3. We are concerned about the proposed use of obsidian hydration during the data recovery phase. Keith Montgomery (2000:6) has stated that "This dating method [obsidian hydration analysis] would be contingent upon the recovery of temporally sensitive projectile points in a definable lithic reduction loci and the cross-dating of associated non-diagnostic lithic artifacts (cores or debitage)". This is not the standard approach to, or in keeping with, the use of obsidian hydration at obsidian quarries. One of the problems with obsidian hydration analysis is that neither absolute nor relative chronologies have been established for many of the sources. Each source hydrates at a specific rate and this varies between sources. A relative chronology has been established for the Mineral Mountain obsidian source. Work by Kathleen Hull for the Kern River Pipeline and more recent work by SWCA for the Level III fiber optic line (Matt Seddon, personal communication May, 2001) have provided archaeologists with a relative chronology. A proper sampling design for obsidian hydration would give us an idea of the sequencing and timing of the use of this site. Unlike as stated by K. Montgomery, this could be done in the absence of temporally sensitive projectile points. Of particular interest would be the relative dating of the large biface production at this quarry and comparing it to the Loa cache. In order to analyze the prehistoric use of the quarry, it will be necessary to separate out the fire history and the recent rock hound use of the area. This can be done most easily with obsidian hydration.

Very little archaeological work has been conducted on the source areas in the Mineral Mountains. While some work has been done on some of the secondary alluvial deposits

in Negro Mag Wash, no work has been done, to our knowledge, on the primary source areas. Therefore, a site like 42BE2126, and in particular LC-10, cannot be compared to the other source areas and its commonality with the rest of the source areas is unknown at this time. Because of this, we believe that the proposed data recovery is not adequate mitigation for the impacts resulting from the mine expansion. The primary source area on site 42BE2126 is at LC-10, which is on a steep slope south of the current mine, and generally outside the main perlite area. We believe that LC-10 could be protected with a minor redesign of the mine expansion, leaving the area below approximately 6560 feet out of expansion. Barring this option, we would suggest that an adequate collection be made for future research, the research design should be revised to incorporate more recent developments in lithic technology and obsidian studies, and an adequate sample of artifacts be submitted for obsidian hydration analysis.

Thank you for your consideration of our concerns. Please feel free to contact us if you have any questions or need additional information.

Sincerely,

Peter W. Ainsworth

Elizabeth J. Skinner, Ph.D.

Cc: Kenny Wintch, SITLA
Mari Parker